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## CLAIMS

1. A bipolar separator plate for use in a fuel cell,  
said separator plate comprising an anterior cathodic flow  
5 field, a posterior anodic flow field and manifolds for flow  
of reactants from the anterior cathodic flow field to the  
posterior anodic flow field and from the posterior anodic  
flow field to the anterior cathodic flow field.

10 2. The bipolar separator plate of claim 1 wherein the  
anterior cathodic flow field is at a 90 degree angle with  
respect to the posterior anodic flow field.

15 3. The bipolar separator plate of claim 1 wherein an  
active manifold and a passive manifold are positioned on each  
edge of the bipolar separator plate.

20 4. A fuel cell stack comprising two or more separator  
plates of claim 1, said separator plates being mounted in  
the fuel cell stack at a 90 degree angle with respect to  
each other.